

SATELLITE METHODS AND STRUCTURES FOR IMPROVED
ANTENNA POINTING AND WIDE FIELD-OF-VIEW
ATTITUDE ACQUISITION

ABSTRACT OF THE DISCLOSURE

Methods and structures are provided for reducing pointing errors ζ of satellite antennas and for generating broad field-of-view satellite 5 attitude acquisition patterns. In one method embodiment, satellite transmit beams have estimated pointing attitudes β and are transmitted to overlap on a ground-based receiving terminal which has a known terminal location λ and which measures received signal strengths α . Pointing errors ζ of the transmit beams are then determined from the 10 estimated pointing attitudes β , the terminal location λ and the signal strengths α and the pointing errors ζ are subsequently reduced by revising the pointing attitudes β . Other method embodiments utilize known signal-strength functions and antenna signals with known signal parameters such as frequencies and/or modulations.